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(72) Inventor: HASHIMOTO KOJI

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(71) Applicant: HITACHI LTD

KAWAMOTO YOSHIFUMI KOBAYASHI TAKASHI

(74) Representative:

(54) FORMATION OF POLYCRYSTALLINE SILICON THIN FILM

(57) Abstract:

PURPOSE: To make it possible to manufacture a polycrystalline Si MOS type field-effect transistor characterized by a small OFF current, a small absolute value of threshold voltage and a large operating current, by using disilane or trisilane as a reacting gas, performing deposition in an amorphous state at a specified temperature, performing a heat

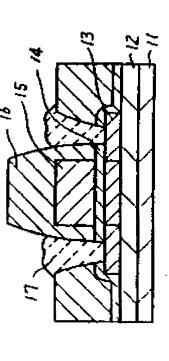
treatment and polycrystallization.

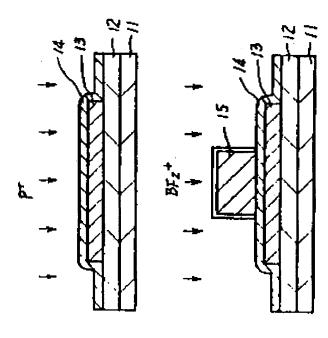
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or less by using disilane or trisilane as deposited by using SiH4 as a reacting formed. Then, an SiO2 film is formed performed at 900°C, and a gate oxide CONSTITUTION: Decomposition is performed under an amorphous state. shape. Thereafter, an SiO2 film 14 is source, a drain and a gate are formed. performed at a temperature of 550°C example, an amorphous Si film 13 is reacting gas at a temperature of 520° deposited on an SiO2 film 12 on a Poolycrystalline state is obtained. For concentration impurity regions for a C. The film is patterned in an island type Si substrate 11 by an LPCVD mplanted in the polycrystalline Si film is obtained. Then, P ions are a reacting gas, and deposition is method by using Si2H6 gas as a Heat treatment is performed at a by heat treatment. BF2 ions are 13. A polycrystalline Si film is gas, and a gate electrode 15 is deposition temperature, and a emperature higher than the deposited. Heat treatment is implanted, and P-type high

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